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OPINIONS AND DECLARATIONS RENDERED BY THE INTER- NATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

Edited by

FRANCIS HEMMING, C.M.G., C.B.E.
Secretary to the Commission

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OPINION 282

Determination of the species to which the specific name *plexippus* Linnaeus, 1758, as published in the combination *Papilio plexippus* (Class Insecta, Order Lepidoptera) shall be held to apply



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INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

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OPINION 282

DETERMINATION OF THE SPECIES TO WHICH THE SPECIFIC NAME "PLEXIPPUS" LINNAEUS, 1758, AS PUBLISHED IN THE COMBINATION "PAPILIO PLEXIPPUS" (CLASS INSECTA, ORDER LEPIDOPTERA) SHALL BE HELD TO APPLY

RULING :—(1) Under the Plenary Powers it is hereby directed (a) that the specific name *plexippus* Linnaeus, 1758, as published in the combination *Papilio plexippus* (Class Insecta, Order Lepidoptera), is to be interpreted by the male specimen of the North American "Monarch" Butterfly taken by H. S. Burnett at Kendall, New York State, (i) which was illustrated in 1941 in the paper by Clark (H.A.) entitled "Notes on some North and Middle American Danaid Butterflies" (*Proc. U.S. nat. Mus.* 90 : 533—536, pl. 71, fig. 1), and (ii) which is now preserved in the United States National Museum (the preparation of the male genitalia prepared from this specimen being labelled "W.D.F.[ield]"); (b) that the foregoing specimen shall be the neotype of the foregoing nominal species; (c) that the locality in which this specimen was collected shall be the restricted locality of this nominal species.

(2) The specific name *plexippus* Linnaeus, 1758, as published in the combination *Papilio plexippus* and as defined, under the Plenary Powers, in (1) above, is hereby placed on the *Official List of Specific Names in Zoology* as Name No. 111.

I.—THE STATEMENT OF THE CASE

On 5th November 1947 Dr. A. Steven Corbet (*British Museum (Natural History), London*) submitted the following application to the International Commission asking for the use of the Plenary Powers for the purpose of determining the identity of the species

to which the specific name *plexippus* Linnaeus, 1758, as published in the combination *Papilio plexippus* (Class Insecta, Order Lepidoptera) should be held to apply :—

Proposed use of the Plenary Powers to determine the identity of the species “*Papilio plexippus*” Linnaeus, 1758 (Class Insecta, Order Lepidoptera)

By A. STEVEN CORBET

(*British Museum (Natural History), London*)

The original description of *Papilio plexippus* in *Syst. Nat.* Ed. 10 : 471 is as follows :

80. P[apilio] D[anaus] alis integerimis fulvis : venis nigris dilatatis, margine nigro punctis albis.

Pet. mus. 58. n. 537. *Raj. ins.* 138. n. 3.

Sloan. jam. 2. p. 214 t. 239. f. 5, 6.

Catesb. car. 2. t. 88.

Habitat in America septentrionali.

Alae primores fascia alba, ut in sequente [chrysippus], qui similis.

It will be observed that there is no reference to “M.L.U.” in the description and so it is to be presumed that the specimen described is in the Linnean Collection, and, indeed, *P. plexippus* is marked in Linnaeus’ copy of Edition 10 as being in his own collection.

The first part of the description has no mention of a white fascia on the forewing, and was, undoubtedly, written for the American “Monarch” butterfly. All four references given by Linnaeus clearly refer to the “Monarch” and not to the Oriental butterfly which, twenty-one years’ later, Cramer denominated *Papilio genutia*. This accords with the view, already expressed, that when Linnaeus first wrote the description of this and several other species of Oriental butterflies for the tenth edition, he had no specimens of his own but relied on descriptions and figures in previously published works. There is no evidence that Linnaeus had any North American butterflies in his own collection at the time he was writing the tenth edition,* but it is known that a consignment of Cantonese butterflies received from P. Osbeck in 1752 included specimens of *Danaus plexippus* (i.e., *genutia*), *D. similis* and *Euploea midamus* (Osbeck, 1765, *Reise nach Ostindien und China . . . , Rostock*). It is highly probable that, after the receipt of the Cantonese butterflies, Linnaeus added the final line

* I think it very doubtful if the specimen of *Nymphalis antiopa* (Linnaeus) in the Linnean Collection, and which Verity (1913, *J. Linn. Soc. Lond., Zool.*, 32 : 181) regarded as the name-type, is of American origin, as this author supposed.

("Alae primores fascia alba,") whereby the description of *plexippus* was restricted to the Oriental *genutia* and no longer accorded with the citations referring to the American species.

The Linnean Collection in London has two undoubted Linnean specimens of the Oriental *genutia*. One of these is a male set on a short pin with rather large rounded head, exactly of the type used for many of the Lycaenid butterflies in the Linnean Collection which carry name labels in Linnaeus' handwriting. This specimen has a label "80 *Plexippus*" written by Linnaeus, and a second label "*Plexippus* 767" by Smith; the Linnean label has two pin holes. A female specimen of *genutia* is without a label, but is low set on a long, black, headless pin, exactly of the type used for most of the Cantonese butterflies which were obtained by Osbeck in 1751.

From a close study of the figure labelled "*plexippus*" in the *Icones*, suppl. plate 5, figure 1, I concluded that Clerck had both these Linnean specimens of *genutia* before him when he painted his figure. Both agree with examples of *genutia* from south-eastern China and, almost certainly, both are Osbeck specimens. I have no hesitation in taking the male specimen bearing the Linnaeus name label as the name-type of *P. plexippus* Linnaeus, 1758.

A few words are necessary to dispose of four other specimens in the Linnean Collection. There are two further females of *genutia*, both carrying labels "E Ind. N.E.K.", and each with a single pin hole. The initials "N.E.K." refer to Nathaniel Edward Kinderley, a cousin of Sir James Edward Smith who held an appointment on the Madras Establishment of the Hon. East India Company. It is known that he wrote to Smith from Tinnevelley, in the Madras Presidency, about 1784, and it is certain that neither of his specimens of *genutia* were in the Linnean Collection before it left Sweden. The Linnean Collection also contains two specimens of the American "Monarch" butterfly, a male labelled "Archippus Fab. 4. 49. Marsham", and a female with a label "Archippus Abbot t.6. Georgia. W.J.H.": both labels are in Smith's handwriting. The initials "W.J.H." refer to W. J. Hooker, who sent two collectors to North America, and both he and Thomas Marsham were contemporaries of Smith. Again, it is certain that these specimens were added to the collection by Smith. The label on the male "Monarch" butterfly has three pin holes, while that on the female has a single pin hole.

In an attempt to end the unsatisfactory position whereby the name *plexippus* was consistently applied to two quite different species of butterfly, Riley (*in* Poulton and Riley, 1928, *Trans. ent. Soc. Lond.*, 1928 : 454) examined the specimens in the Linnean Collection in London and concluded that the only authentic Linnean specimens among the examples of the American and Oriental claimants for the name was a male of the American "Monarch". I have shown above that both specimens of the "Monarch" in the collection were added by Smith, and that the collection contains authentic Linnean examples

only of the Oriental *genutia*, one of them bearing a label in Linnaeus' handwriting. It is probable that Riley's investigation accounts for the extra pin holes in the labels of some of the specimens.

Sufficient has been said, I think, to demonstrate that, according to the usual procedure adopted by systematists working in accordance with such guidance as is given by the International Rules of Zoological Nomenclature, the name *Papilio plexippus* Linnaeus, 1758, must be applied to the form of the Oriental *genutia* from south-east China. Nevertheless, it is a matter of interest to consider any specimens of the "Monarch" or *genutia* in the Collection of Queen Ludovica Ulrica, although their identity can have no bearing on the status of the name *plexippus*. *P. plexippus* was re-described by Linnaeus in 1764, *Mus. Lud. Utr.* : 262 at much greater length than in the 1758 Edition of the *Systema*, and there is the same reference to the white fascia on the forewing which restricts the name to the Oriental *genutia*. It is stated "Habitat in *America septentrionali*. P. Kalm. meus e China.", which suggests that the Queen had one or more American specimens taken by Kalm, although, at the time Aurivillius examined the collection, there were two examples of *genutia* and none of the "Monarch".

On the other hand, in Linnaeus' original manuscript descriptions apparently written for *Museum Ludovicæ Ulricæ Reginae*, there is no mention of a white fascia on the forewing, but there is a reference to a figure of the American butterfly in Catesby, 1731—1743, *Natural History of Carolina Florida and the Bahama Islands* (London). Aurivillius thought that Linnaeus must have written this description according to a specimen of the "Monarch" in the Queen's Collection, and a little evidence can be adduced in support of such a view. Apparently other specimens are missing from the Queen's Collection. The North American butterflies *Papilio troilus* and *P. glaucus* were described from "M.L.U." specimens in the Tenth Edition; in *Mus. Lud. Utr.*, they were described as "Habitat in *America septentrionali*. P. Kalm.", and examples of both butterflies still remain in the Queen's Collection at Upsala. It may be argued that it is impossible that Linnaeus based the description of *plexippus* in his manuscript notes entirely on Catesby's figures for he mentions the antennae, legs and underside of the body, all of which are not visible in this figure. At first sight, this seems convincing evidence that the Queen had one or more specimens of the "Monarch" butterfly. Nevertheless, a comparison of the description in Linnaeus' notes and that in *Mus. Lud. Utr.* : 262 suggests that the words in the description following the reference to Catesby's figure and which refer to the antennae, legs, etc., were founded on *genutia* and not on an actual specimen of the "Monarch".

It is a mistake to suppose that the name *plexippus* has long been employed for the American butterfly, and that an attempt is being made to "change the name". Indeed, rather is the reverse the case.

After its first appearance in the Tenth Edition in 1758 and in *Mus. Lud. Ulr.* in 1764, the Linnean name was next employed by Osbeck (1765, *op. cit.* : 270) for the Oriental *genutia*, and from an examination of the books written by "reputable authors in systematic and faunistic work" Talbot (1943, *loc. cit.* : 116) concluded that a large majority of those who recorded the Oriental species used the name *plexippus*, while most of those who dealt with the American butterfly did not use this name but *archippus* (Fabricius)†, although a few used the name *menippe* (Hübner). In fact, according to the International Rules, this latter name is the correct one for the North American butterfly.

Summary

It is shown that, if the name *Papilio plexippus* Linnaeus, 1758, is determined according to the usual procedure adopted by systematic zoologists, and in accordance with the International Rules of Zoological Nomenclature, its use must be restricted to the Oriental *Danaus* species described as *Papilio genutia* Cramer, 1779. The oldest valid name available for the North American "Monarch" butterfly is *Anosia menippe* Hübner, 1816, so that this species should hereafter be known as *Danaus menippe* (Hübner).

Nevertheless, a strong case can be put forward in favour of restricting the use of the Linnean name *plexippus* to the American butterfly. During the past twenty years, this species has been known almost consistently by the Linnean name, both in Britain and America, and a considerable volume of literature has developed within this period on the subject of the migrations of this butterfly. Accordingly, an application is being made to the International Commission on Zoological Nomenclature in the terms stated below.

Appendix

The specific name *Papilio plexippus* Linnaeus, 1758

In the past this name has been applied by various authors to the Oriental *Danaus* species described as *Papilio genutia* Cramer, 1779, and to the American "Monarch" butterfly, for which the oldest valid name appears to be *Anosia menippe* Hübner, 1816. In a recent paper (Corbet, 1948, *Proc. R. ent. Soc. Lond. (B.)* 17 : 184—190) it is shown that, if this Linnean name is determined according to the usual procedure adopted by systematic zoologists, and in accordance with the International Rules of Zoological Nomenclature, its use must be restricted to the Oriental species *genutia* Cramer. However, as the "Monarch" butterfly has been known almost consistently,

† *Papilio archippus* Fabricius, 1793, is preoccupied by *Papilio archippus* Cramer, 1775, a species of *Limenitis*.

although incorrectly, by the Linnean name for the past twenty years, both in Britain and America, and as a voluminous literature has developed within this period on the subject of the migration of this butterfly, it appears desirable to continue to use the name for this species rather than to restrict it to the rightful claimant for the name.

It is hoped, therefore, that the International Commission on Zoological Nomenclature will exercise the Plenary Powers conferred upon them by the International Zoological Congress and promulgate an *Opinion* to the following effect :—

The name *Papilio plexippus* Linnaeus, 1758, is not to be employed for the Oriental *Danaus* species described as *Papilio genutia* Cramer, 1779, although this appears to be the correct procedure, but is to be reserved for the North American "Monarch" butterfly for which the oldest valid name appears to be *Anosia menippe* Hübner, 1816. The specimen figured in Catesby, 1731—1743, *Natural History of Carolina Florida and the Bahama Islands* (London), plate 88, and referred to by Linnaeus in his original description may be taken as the name-type, and the type locality is thus the southern United States of America.

II.—THE SUBSEQUENT HISTORY OF THE CASE

2. Registration of the present application : On the receipt of Dr. Corbet's application, the question of the identity of the taxonomic species represented by the nominal species *Papilio plexippus* Linnaeus, 1758, was allotted the Registered Number Z.N.(S.) 323.

3. Statement submitted by Mr. Francis Hemming (London) : The question raised in the present application had in 1946 formed the subject of study by Mr. Francis Hemming (London) in his capacity not as Secretary but as a lepidopterist when he had been engaged, so far as his duties to the Commission permitted, in a detailed study of the writings of Linnaeus on the butterflies of the Palaearctic Region. The following is the paper which he

had then written on the problem which forms the subject of the present *Opinion* :—

**On the identity of the species described by Linnaeus
in 1758 under the name "Papilio plexippus"**

By FRANCIS HEMMING, C.M.G., C.B.E. (*London*)

Papilio plexippus Linnaeus, 1758

Papilio plexippus Linnaeus, 1758, *Syst. Nat.* (ed. 10) 1 : 471, no. 80
"Habitat in America septentrionali"

Papilio plexippus Linnaeus, 1764, *Mus. Lud. Ulr.* : 262, no. 81 "Habitat
in America septentrionali. P. Kalm. meus e China"

Papilio plexippus Linnaeus, 1767, *Syst. Nat.* (ed. 12) 1 (2) : 767, no. 117
"Habitat in America septentrionali"

The nominal species *Papilio plexippus* Linnaeus, 1758, is the type species, by selection by myself (Hemming, 1933, *Entomologist* 66 : 222) of the nominal genus *Danaus* Kluk, 1802 (*Zwierz. Hist. nat. pocz. gospod.* 4 : 84), the type genus of the family DANAIDAE. It is very important, therefore, that there should be no room for doubt as to the identity of the taxonomic species represented by the nominal species *Papilio plexippus* Linnaeus. Unfortunately, however, there has been considerable disagreement in the literature on this subject. The majority of workers—at least in recent times—has treated the name *Papilio plexippus* Linnaeus as applying to the migratory species which occurs in North America, where it is known by the vernacular name "The Monarch". Other workers have, however, identified the species so named by Linnaeus with the South China species to which in 1779 (*Uitl. Kapellen* 3 (18) : 23, pl. 206, figs. C, D) Cramer gave the name *Papilio genutia*, a name now universally applied to this species by all those who consider that the name *Papilio plexippus* Linnaeus is properly applicable to the North American "Monarch". In view of this difference in practice, it is necessary to examine the available facts with a view to determining to which of the foregoing species the name *plexippus* Linnaeus is properly applicable.

2. The first matter to be looked at is the description given by Linnaeus himself for his species *Papilio plexippus*. Here we find :—
(1) that the initial diagnosis is applicable either to the North American "Monarch" (which we may conveniently call Species "A") or to the South China species (= *P. genutia* Cramer) (which we may call Species "B"); (2) that the locality "Habitat in America septentrionali" given by Linnaeus can apply only to Species "A"; (3) that the supplementary description given at the end of the entire entry (i.e. after both the bibliographical references and the type locality), which reads "*Alae primores fascia alba, ut in sequente [Papilio chrysippus], cui similis*", does not apply to Species "A" but does apply to Species "B". Taking the descriptions as a whole, it is clear, therefore, that it is based, in part, upon two different species.

3. In order therefore to determine the identity of the species to which the name *plexippus* Linnaeus shall apply it is necessary to make resort to the mechanism provided by Article 31, which, though defectively drafted¹ by reason of containing the highly inappropriate expression " subdivision d'une espèce ", nevertheless does provide a means for determining to which of two or more taxonomic species included in the description of a given nominal species the name published for the latter shall apply. In its present form this Article does not prescribe that the selection of a lectotype shall be the only permissible method for use in a situation such as that which confronts us here—indeed, the expression " lectotype " does not as yet occur anywhere in the *Règles* at all²—and it must be concluded therefore that a valid determination can be made under this Article by a " First Reviser ". It is from this point of view that the present problem must therefore be examined.

4. The first author to deal critically with the nominal species *Papilio plexippus* after 1758 was Linnaeus himself when in 1764 he described the Collection of Queen Ludovica Ulrica of Sweden. On this occasion Linnaeus again added a supplementary note which applies to the Chinese Species " B " and not to the North American Species " A ", but he added some very illuminating information regarding the " Habitat " of his species *Papilio plexippus*. First, we have to note that he retained " America septentrionalis " as the locality for this species ; second, he added the name of P[eter] Kalm as the collector by whom this North American material had been obtained ; third, he added that in his own collection—as contrasted with the collection of the Queen of Sweden—there were specimens of this species from " China ". The importance of the first of these pieces of information rests in the fact that Peter Kalm is known to have collected butterflies for Linnaeus in Pennsylvania in 1747. The Chinese specimens which Linnaeus stated that he had in his own collection were no doubt obtained for him at Canton by Peter Osbeck in 1750. It may therefore certainly be concluded that long before the publication in 1758 of the Tenth Edition of the *Syst. Nat.* Linnaeus possessed North American specimens of Species " A " and Cantonese specimens of Species " B ". With this knowledge, we may now turn back to the description given by Linnaeus in 1758 for his *Papilio plexippus*. Here, as we have seen, he gave only one locality " America septentrionalis " for this species, that being the region from which he had obtained specimens from Kalm ; so far as it goes, the unqualified citation of this locality completely rules Species " B " out of account. On the other hand, it is clear that at that time the Cantonese specimens of Species " B " received from Osbeck were

¹ The defects here referred to were remedied by the revision of Article 31 carried out by the Paris (1948) and Copenhagen (1953) Congresses.

² It was not until 1948 that the concept " lectotype " was granted recognition in the *Règles* (see 1950, *Bull. zool. Nomencl.* 4 : 186).

associated by Linnaeus with the North American species to which he then gave the name *Papilio plexippus*, for it is only on this assumption that it is possible to account for his having added to the description of that species the one-line note which refers to the Cantonese, and not to the North American, species. In 1764, as we have seen, Linnaeus added the locality "China" for the first time, though on this occasion again he retained "America septentrionalis" as the principal locality for this species. When, however, we turn to the treatment of this species by Linnaeus in 1767 in the Twelfth Edition of the *Syst. Nat.*, we find that he then dropped the locality "China", giving only the locality "America septentrionalis", though, whether by inadvertence or otherwise, he retained the supplementary note relating to the Cantonese species. If it had not been for this latter fact, it would certainly be legitimate to regard Linnaeus as having acted in 1767 as the First Reviser of the nominal species *Papilio plexippus* established by himself in 1758 and as having selected the North American species (Species "A") to be the species to which the name *plexippus* Linnaeus, 1758, should apply, to the exclusion of the Cantonese species (Species "B"). Even as it is, there seems to be no doubt that by constantly placing the references to the Cantonese species in a subsidiary position, Linnaeus showed that it was the North American specimens which provided the basis for his concept of his nominal species *Papilio plexippus*.

5. It is necessary, therefore, to examine the literature for the purpose of determining whether any author has formally interpreted *Papilio plexippus* Linnaeus by acting as a First Reviser under Article 31 by selecting either Species "A" or Species "B" to be the sole species to which this name shall apply. In my view, Cramer so acted when in 1779 he (1) described and figured (*Uitl. Kapellen* 3 (18) : 23, pl. 206, figs. C, D) the Cantonese species (Species "B") as *Papilio genutia* and at the same time redescribed and figured (*ibid.* 3 (18) : 24, pl. 206, figs. E, F) the North American species (Species "A") under the name *Papilio plexippus* Linnaeus. In view however, of the considerable discussion which has taken place regarding the proper application of this name, it will, I think, be well to secure a final settlement of this matter by asking the International Commission on Zoological Nomenclature to give a formal ruling that the name *plexippus* Linnaeus, 1758, as published in the combination *Papilio plexippus*, shall apply exclusively to the migratory species found in North America discussed above under the name Species "A". It will be for the Commission to decide whether this can be done appropriately under the mechanism provided by Article 31 or whether it would be better for it to invoke its Plenary Powers. I feel strongly that, owing to the present and past usage of the name *plexippus* Linnaeus and, in particular, to the extensive use of the name *plexippus* Linnaeus for the North American "Monarch" butterfly in the literature of insect migration, the loss of that name for that species and its employment for *P. genutia* Cramer would be open to great objection and ought certainly to be prevented.

6. I have discussed this problem upon a number of occasions with my friend Dr. Steven Corbet of the British Museum (Natural History), who possesses an unrivalled knowledge of the Linnean butterflies. Dr. Corbet agrees that some means should be found for ensuring that the name *plexippus* Linnaeus shall apply unquestionably to the North American "Monarch" butterfly, but he considers that under the *Règles* that name at present applies to the Cantonese species which Cramer named *Papilio genutia* and that in order to secure the desired end it will be necessary to obtain from the International Commission the use of its Plenary Powers. He reaches this conclusion almost entirely by an examination of the surviving specimens in the Linnean collection and, as it seems to me, by giving insufficient weight to the evidence afforded by the localities cited by Linnaeus for *Papilio plexippus* and by our knowledge of the collecting done for Linnaeus in North America by Peter Kalm and by not applying to this case the provisions of Article 31.

4. The present was one of a number of cases relating to individual names, summaries of which were given in a paper (Paper I.C.(48) 19), prepared by the Secretary for consideration by the International Commission on Zoological Nomenclature at its Paris Session in 1948. The following is an extract from the above Paper of the portion relating to the present case (1950, *Bull. zool. Nomencl.* 3 : 137) :—

(6) *Proposed use of the Plenary Powers to determine the identity of Papilio plexippus Linnaeus, 1758 (Class Insecta, Order Lepidoptera)*: No final settlement will ever be reached on the question whether the above name was given to (1) the North American "Monarch" Danaid or (2) to the Chinese species of Danaid name *Papilio genutia* by Cramer, unless the Commission use their Plenary Powers to put an end to this controversy, for there are good arguments in support of either view (though personally I think those in favour of the "Monarch" to be the stronger of the two). Great confusion has arisen in this case, a fact which is particularly unfortunate (a) because of the large non-systematic literature regarding the "Monarch" (in relation to its migratory habits) and (b) because it is particularly objectionable to be in doubt regarding the identity of the type species of a genus (*Danaus* Kluk, 1802) which forms the basis of a family. I recommend that this problem which was submitted to the Commission by A. S. Corbet (British Museum (Natural History)) should now be settled by the use of the Plenary Powers to determine the matter by declaring that the species to which the name *Papilio plexippus* Linn. applies is the North American "Monarch" and not the Chinese species. This would be done by reference to some figure of the first of these species.

5. At Paris in 1948 the International Commission on Zoological Nomenclature suspended its By-Laws for the duration of that Session (1950, *Bull. zool. Nomencl.* 4 : 7—8), and it was in virtue of that decision that the present case was brought before the Commission later during that Session.

III.—THE DECISION OF THE INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

6. The present case was considered by the International Commission on Zoological Nomenclature at the Thirteenth Session of its Paris Session held at the Sorbonne in the Amphithéâtre Louis-Liard on Monday, 26th July 1948 at 1730 hours. The following is an extract from the Official Record of the Proceedings of the International Commission setting out the decision reached by it in the present case at the foregoing meeting (Paris Session, 13th Meeting, Conclusion 7) (1950, *Bull. zool. Nomencl.* 4 : 359—361) :—

THE COMMISSION agreed :—

- (1) to use their Plenary Powers to direct that the trivial name *plexippus* Linnaeus, 1758, as published in the binomial combination *Papilio plexippus*, should be applied to the American species figured as *Danais plexippus* by Holland (W.J.), 1931, *Butterfly Book* as figure 1 on plate 7 ;
- (2) to place the trivial name *plexippus* Linnaeus, 1758, as originally published in the binomial combination *Papilio plexippus*, as determined in (1) above on the *Official List of Specific Names in Zoology* ;
- (3) to render an *Opinion* setting out the decisions recorded in (1) and (2) above.

7. The decision recorded in the immediately preceding paragraph was reported to, and approved by, the Section on Nomenclature of the Thirteenth International Congress of Zoology, Paris, 1948, at its fifth Meeting held on Monday, 26th July 1948 (1950, *Bull. zool. Nomencl.* 5 : 105).

8. The foregoing decision was concurred in by the sixteen (16) Commissioners and Alternate Commissioners present at the Paris Session of the International Commission, namely :—

Beltrán *vice* Cabrera ; Boschma ; Bradley ; di Caporiacco ; Hemming ; Hindle *vice* Jordan ; Jorge *vice* do Amaral ; Kirby *vice* Stoll ; Lemche *vice* Dymond ; Mansour *vice* Hankó ; Metcalf *vice* Peters ; Riley *vice* Calman ; Rode ; Spärck *vice* Mortensen ; van Straelen *vice* Richter ; Usinger *vice* Vokes.

9. The foregoing decision was dissented from by no Commissioner or Alternate Commissioner present at the Paris Session.

10. *Discovery in 1950 of a defect in the decision taken in 1948 :*
In August 1950 the attention of the Commission was drawn by Dr. Austin H. Clark (*United States National Museum, Washington, D.C., U.S.A.*) to the fact that the selection in Paris of figure 1 on plate 7 of Holland's *Butterfly Book* to be the standard of reference for the identification of the nominal species *Papilio plexippus* Linnaeus was inappropriate, for that figure, although appearing in a book on the butterflies of North America, did not represent the well-known migratory subspecies of the "Monarch" butterfly found in the United States but was referable to the subspecies found in northern South America. The following is an extract from the relevant portion of Dr. Austin Clark's letter of 31st August 1950 :—

In the *Bull. zool. Nomencl.* vol. 4, Parts 13/15, p. 361, 1950, it says : " the trivial name *plexippus* Linnaeus, 1758 (as published in the binominal combination *Papilio plexippus*) should be applied to the American species figured as *Danais plexippus* by Holland (W. J.), 1931, *Butterfly Book*, as figure 1, on plate 7 "

This is a most unfortunate complication, for Holland's figure represents not the North American *plexippus* but the subspecies *megalippe* Hübner of northern South America.

I recognised this long ago and asked my friend Dr. Hugo Kahl at Pittsburg to look up the specimen. The specimen figured was purchased from Staudinger and bears the label "*Danais erippus*, South America." (See *Proceedings of the Biological Society of Washington*, vol. 51, p. 179, 1938.) I gave it as *nigrippus*, not being aware at the time of Hübner's *megalippe*, which is scarcely different. The same information is repeated in *Proc. U.S. Nat. Mus.*, vol. 90, p. 537, 1941, under *Danaus plexippus megalippe*.

If the name *plexippus* is reserved for the subspecies now called *megalippe* of northern South America, our migratory North American form becomes a subspecies of *plexippus*, and its nomenclatural status is as much in doubt as ever.

As these sedentary Middle American forms, in contrast to the northern and southern ones, are variable, it would be necessary to fix a type locality. Staudinger received many specimens from Surinam. As Holland's figure agrees well with specimens from the Guianas, Paramaribo would be presumably the type locality for *plexippus*.

11. Consultations initiated by the Secretary in October 1950 : On receiving the foregoing information, Mr. Francis Hemming, as Secretary to the Commission, came to the conclusion that, while it was essential that the International Commission should be asked to amend in some appropriate manner the decision which it had taken in Paris, it would assist the Commission if, before submitting a proposal on this subject, he were to ascertain from a wide range of specialists the nature of the action best calculated to secure the desired end. Accordingly, in October 1950 Mr. Hemming prepared the draft of a paper on this subject, containing a suggested solution which he despatched for comment and/or amendment to the twenty-three specialists enumerated below :—

(1). North America (thirteen specialists) :

- Bryan Beirne (*Ottawa, Canada*)
- J. Martin Brown (*Colorado Springs, Colorado*)
- J. F. Gates Clarke (*Washington, D.C.*)
- J. A. Comstock (*Los Angeles, California*)
- C. F. dos Passos (*Mendham, N.J.*)
- W. D. Field (*Washington, D.C.*)
- Wm. T. M. Forbes (*Ithaca, N.Y.*)
- J. G. Franclemont (*Washington, D.C.*)
- W. Hovanitz (*Ann Arbor, Michigan*)

A. B. Klots (*New York City*)
 J. McDunnough (*Halifax, Nova Scotia*)
 C. D. Remington (*New Haven, Conn.*)
 Austin H. Clark (*Washington, D.C.*)

(2). South America (three specialists) :

Ferreira d'Almeida (*Rio de Janeiro*)
 K. J. Hayward (*Tucumán*)
 A. da Costa Lima (*Rio de Janeiro*)

(3). Europe (five specialists) :—

J. Bourgogne (*Paris*)
 G. D. Hale Carpenter (*Oxford*)
 W. J. Hall (*London*)
 B. C. S. Warren (*Folkestone*)
 C. B. Williams (*Harpden*)

(4). Africa (two specialists) :

E. Pinhey (*Nairobi*)
 G. van Son (*Pretoria*).

12. *Text of the draft solution submitted by the Secretary to specialists for comment:* The solution of the difficulty disclosed by Dr. Austin Clark submitted for discussion by Mr. Hemming in the draft paper referred to above was that the International Commission on Zoological Nomenclature should be recommended :—

- (1) to delete the words “ by Holland (W. J.), 1931, *Butterfly Book* as figure 1 on plate 7 ” in the last two lines of Section (1) of the Official Record of its decision in regard to the name *Papilio plexippus* Linnaeus, 1758 (1950, *Bull. zool. Nomencl.* 4 : 361) and to substitute therefore the words “ by Clark (A. H.) as figure 1 on plate 71 ” in his paper entitled “ Notes on Some North and Middle American Danaid Butterflies ” published in 1941 (*Proc. U.S. nat. Mus.* 90 : 533—536, pl. 71, fig. 1 (male)) and that the type locality of the nominotypical subspecies of this species should be deemed to be “ Pennsylvania ” (as indicated by Linnaeus in 1758, as supplemented in 1764) ;
- (2) to insert the correction and addition specified in (1) above in the *Opinion* agreed to be rendered in regard to the name *Papilio plexippus* Linnaeus, 1758.

13. Summary of the advice received from specialists : Of the twenty-three (23) specialists so consulted, thirteen (13) fully supported the suggested selection of figure 1 on plate 71 in a paper by Austin H. Clark entitled "Notes on some North and Middle American Danaid Butterflies" published in 1941. Two (2) other specialists gave a qualified support for this proposal. Three (3) of the specialists who supported this proposal considered, however, that, if the suggested selection of Clark's figure was to be made, the locality to be fixed for the nominate subspecies of *Papilio plexippus* Linnaeus should be the locality in which the specimen illustrated by Clark had been obtained. Three (3) specialists were opposed to the action suggested, considering that this question should be settled on the basis of strict priority. Two (2) specialists suggested that, if possible, this case should be settled by the selection of a lectotype from among the specimens preserved in the Linnean collection ; of these one suggested that, if the foregoing course were to be found impracticable, a neotype should be selected and the other recommended a course substantially equivalent to the designation of a neotype. One (1) specialist favoured the complete reversal of the Paris decision and the use of the specific name *plexippus* Linnaeus for the Oriental Danaid named *Papilio genutia* by Cramer in 1779. Two (2) of the specialists consulted did not reply. More detailed particulars of the views expressed by specialists in the informal consultation initiated by Mr. Hemming are given in paragraphs 5—10 of a memorandum which he submitted to the Commission on 27th January 1954 which is reproduced in paragraph 27 of the present *Opinion*.

14. Report submitted to the Commission in regard to the consultations initiated in 1950 : In April 1951 a brief report on the outcome of the foregoing informal consultation was submitted to the International Commission ; but no further action in this matter was taken at that time, there being no immediate prospect of its being possible to render an *Opinion* on the Paris decision in this matter. It was considered, moreover, that the question at issue was not one of such immediate urgency as many other matters, notably the initial preparations for the discussions on nomenclature at the Copenhagen Congress in the following year, which then required attention. This decision was explained in a brief note by the Secretary published in July 1952

(Hemming, 1952, *Bull. zool. Nomencl.* 6 : 284—285) at the time of the publication of the application by Mr. C. F. dos Passos reproduced in the immediately following paragraph.

On the need for an amendment of the decision taken in 1948 regarding the method to be followed in identifying the taxonomic species represented by the nominal species "Papilio plexippus" Linnaeus, 1758 (Class Insecta, Order Lepidoptera)

Report by FRANCIS HEMMING, C.M.G., C.B.E.

(Secretary to the International Commission on Zoological Nomenclature)

In 1948 the International Commission on Zoological Nomenclature decided to use its Plenary Powers for the purpose of securing that the trivial name *plexippus* Linnaeus, 1758, as published in the combination *Papilio plexippus*, should be applied to the "American Monarch Butterfly" and not to the Oriental species to which the name *plexippus* had also been applied but which was also widely known as *Danaus genutia* (Cramer, [1779]) (*Papilio genutia* Cramer, [1779]). For this purpose the Commission used its Plenary Powers to secure that the trivial name *plexippus* Linnaeus "should be applied to the American species figured as *Danaus plexippus* by Holland (W. J.), 1931, *Butterfly Book* as figure 1 on plate 7" (1950, *Bull. zool. Nomencl.* 4 : 361).

2. In September 1950, my attention was drawn to the fact that, although Holland's *Butterfly Book* was concerned only with the butterflies of North America, the specimen which he had figured as fig. 1 on his plate 7, though a specimen of the species to which the Commission had intended to refer, was a specimen not of the North American subspecies but of the South American subspecies (*menippe* Hübner).

3. In the light of this discovery it became clear that the figure cited by the Commission in its 1948 decision as the figure by which the nominal species *Papilio plexippus* Linnaeus, 1758, should be identified was unsuitable, in that it did not represent—as the Commission had erroneously thought that it did—the North American subspecies of the "Monarch Butterfly".

4. I accordingly concluded that it was desirable that this matter should again be brought to the attention of the Commission before an *Opinion* was formally rendered giving effect to the Paris decision, so that the Commission might have an opportunity of considering the substitution in its decision of a reference to a more appropriate figure than that specified in the decision quoted in paragraph 1 above.

5. For the purpose of ascertaining the wishes of interested workers in this matter, I accordingly prepared the draft of a memorandum drawing attention to the foregoing problem and offering a tentative suggestion for overcoming the difficulty which had come to light. This draft memorandum was then (October 1950) sent for comment to twenty-three workers in the Order Lepidoptera (North America, 13 ; South America, 3 ; Europe, 5 ; Africa, 2), whose names were kindly suggested to me by Commissioner N. D. Riley (*British Museum (Natural History)*) as being workers likely to be interested in this subject. The comments and suggestions received in reply to this consultation were extremely diverse, but it was quite clear that the particular suggestion which I had tentatively put forward did not meet with general approval.

6. I reported the result of this consultation to the International Commission, but at that time I did nothing more in the matter, for, as there was no immediate prospect of its being possible at an early date to issue an *Opinion* following on the Paris decision in this matter, the problem at issue was not one of such immediate urgency as many other matters which then required attention.

7. Within the last few days Mr. Cyril F. dos Passos has submitted to the International Commission a proposal, dated 29th April 1952, on this subject, which is being published in the present Part of the *Bulletin of Zoological Nomenclature*. Now that this question has been brought before the Commission in this way, the prescribed advertisement of this proposal will throw the whole subject open to general discussion.

15. Proposal submitted by Mr. Cyril F. dos Passos in 1952 :
On 29th April 1952 Mr. Cyril F. dos Passos (*The American Museum of Natural History, New York*) submitted the following definite proposal for overcoming the difficulty which had arisen in this case. Mr. dos Passos' proposal was published on 23rd July 1952 (*Bull. zool. Nomencl.* 6 : 278—283).

Application to the International Commission on Zoological Nomenclature to reconsider and rephrase in part their decision suspending the "Règles" concerning "Papilio plexippus" Linnaeus, 1758, insofar as that decision refers to a figure in Holland's "Butterfly Book"

By CYRIL F. DOS PASSOS, LL.B., F.R.E.S.
(Research Associate, *American Museum of Natural History, New York*)

Statement of the Case

Linnaeus in 1758 (: 471, no. 80) proposed the name *P[apilio] D[anaus] Plexippus*, "Habitat in America septentrionali". He cited

American references only. The first part of the description applies to the North American "Monarch" butterfly, but the second part applies only to the Oriental species, later named *Papilio genutia* Cramer ("1782" [1779], *Uitl. Kapellen* 3 : 23, p. 206, figs. C-D).

2. Linnaeus in 1764 (: 262) redescribed *Papilio D[anaus] F[estivus]* *Plexippus*, "Habitat in America septentrionali. P. Kalm. Meus e China". This description applies only to the Oriental species.

3. Cramer in [1779] described the Oriental species referred to above as *Papilio Genutia*, and that name has been used quite generally for that species.

4. *Papilio plexippus* has been employed frequently for the Oriental species and often for the North American species, but in recent years that name has been used more and more for the North American species, especially in semi-popular works and those dealing with migrations.

5. No American specimen of the North American "Monarch" was in the collection of Queen Ludovica Ulrica at Upsala, Sweden, when examined by Aurivillius in 1882 (: 69—70), and none has been found in that collection since that time.

6. No American specimen of the North American "Monarch" appears to have been in the Linnean collection in 1758, and those in the collection at the present time in the Linnean Society, London, are believed to have been added after Linnaeus' death, and do not bear name labels in his handwriting.

7. In the Linnean collection referred to in paragraph 6 there are two Oriental Danaid butterflies, one bearing a label in Linnaeus' handwriting reading "80 *Plexippus*", and these two specimens are most probably the types of *Papilio plexippus*.

8. If *Papilio plexippus* had to be used for the Oriental species, it would result in sinking *P. genutia* and cause considerable confusion.

9. If *Papilio plexippus* were not available for the North American "Monarch", the oldest valid name would be *Anosia menippe* Hübner (1816 : 16, no. 86).

10. Riley in 1928 (: 453—455) claimed that the name *Papilio plexippus* should be used for the North American "Monarch", but Corbet in 1949a (: 184—190) argued that *P. plexippus* must be used for the Oriental species.

11. Up to this point the problem presented by this name had been one of taxonomy—the identification and classification of *Papilio*

plexippus—a problem upon which able taxonomists (Riley, 1928 : 453—455 ; Talbot, 1943a : 84, 1943b : 115—116, 126 ; Corbet, 1941 : 18, 27, 1949a : 188—190, to mention only a few), had been unable to agree, so that there was danger that the name would be applied from time to time to different insects.

12. Thus a problem of nomenclature was created—what to do with the name *Papilio plexippus*—concerning which stability is most desirable. This question fell, naturally, under the jurisdiction of the International Commission on Zoological Nomenclature, where Corbet prior to the 1948 Congress had placed it by an application to the Commission for a suspension of the *Règles* so as to validate the name *P. plexippus* for the North American species, in which he suggested “ taking as the name-type the figure referred to by Linnaeus in Catesby, 1731—1743, Natural History of Carolina, Florida and the Bahama Islands (London) ”, (1949b : 199).

13. Corbet's application was brought to the attention of the Commission at Paris in 1948 in a memorandum (I.C. (48) 19) by the Secretary (later published in 1950, *Bull. zool. Nomencl.* 3 : 137) relating to certain individual cases which had been pending before the Commission for some time, and concerning which he desired to have their opinion. This portion of the memorandum reads as follows :—

[Here followed the text of the note on this case submitted by the Secretary to the Commission at its Paris Session in Commission Paper I.C. (48) 19. The passage in question has been quoted in paragraph 4 of the present “ Opinion ”, and in consequence is not reprinted here.]

The Decision of the Commission

14. The International Commission on Zoological Nomenclature had four possible solutions of the problem presented to it by Corbet—(a) to deny the application and let the name *Papilio plexippus* be shuffled about from pillar to post as it had been in the past, (b) to apply the name *P. plexippus* to the Oriental insect, thus causing the trivial name *genutia* to fall as a synonym of *plexippus*, (c) to suppress the name *P. plexippus* entirely under Suspension of the Rules, in which event *Danaus menippe* would be available for the North American “ Monarch ”, or (d) to preserve the name *P. plexippus* for the North American “ Monarch ” under a suspension of the *Règles*.

15. There is little use in discussing the merits and demerits of these four possible solutions, because the Commission chose the last (d), and the matter is now academic. It remains to be seen how the Commission carried out its decision at Paris, because that action has led to some misunderstanding, confusion and controversy.

16. At the International Congress of Zoology held at Paris in 1948 the application referred to in paragraph 12 above was granted in part, *i.e.*, insofar as to suspend the *Règles* and place the name *plexippus* Linnaeus, as published in the combination *Papilio plexippus*, upon the *Official List of Specific Trivial Names in Zoology* to be used for the North American "Monarch" butterfly.

17. At the meeting referred to in paragraph 16 the application referred to in paragraph 12 was denied in part, *i.e.*, insofar as it suggested taking for the name-type of *Papilio plexippus* "the figure referred to by Linnaeus in Catesby, 1731—1743, Natural History of Carolina, Florida and the Bahama Islands (London)".

18. At the meeting referred to in paragraph 16 the Commission's minutes (1950, *Bull. zool. Nomencl.* 4 : 359—361) read as follows :—

[The long extract which followed at this point is not reproduced here, for the first portion was no more than a summary of the applications received in this case from Dr. A. Steven Corbet and from Mr. Francis Hemming which have been reproduced in full in paragraphs 1 and 2 of the present "Opinion", while the second portion (which contained the Official Record of the decision taken by the International Commission in Paris in 1948) has already been quoted in paragraph 5 of the present "Opinion".]

19. The phraseology of the first (1) paragraph of the Commission's agreement is rather unfortunate and the reference to the figure in Holland's Butterfly Book (1931 : pl. 7, fig. 1) has given rise to some misunderstanding, confusion and controversy (Field, Clarke and Franclemont, 1951 : 68—70; d'Almeida, Oiticica, F., et al., 1951 : 728—729; Riley, 1951 : 75—76) because, while the Commission intended to cite a figure of *Danaus plexippus plexippus* (Linnaeus), the North American "Monarch", it was subsequently discovered that Holland's figure is in fact *Danaus plexippus menippe* (Hübner), the South American subspecies which had been misdetermined by Holland.

20. The Commission did not designate any type specimen or type figure of *Papilio plexippus*, nor did they fix any type locality for that insect, nor has any lectotype designation of *P. plexippus* ever been made, because lectotypes were not officially recognised until the amendment to the *Règles* in 1948.

Recommendation

21. Since no *Opinion* has been rendered as yet by the Commission in this matter, it is respectfully submitted that the International Commission on Zoological Nomenclature should now reconsider

and rephrase paragraph (1) of its decision referred to in paragraph 18 so that the same will read as follows :—

"(1) to use their Plenary Powers to direct that the trivial name *plexippus* Linnaeus, 1758, as published in the binominal combination *Papilio plexippus*, should be applied to the North American "Monarch" butterfly"

to be followed, if deemed advisable, by a reference to the figure of *Danaus plexippus plexippus* (Linnaeus) appearing in one of the following publications, which contain good figures of that insect :—

Catesby, Mark [1730—1748]. The natural history of Carolina, Florida and the Bahama Islands : containing the figures of birds, beasts, fishes, serpents, insects and plants . . . with their descriptions in English and French, &c.—*Histoire naturelle de la Caroline, &c.* (Appendix). London. Vol. 2, p. 88, pl. 88.

Clark, Austin Hobart, 1941. Notes on some North American Danaid butterflies. *Proc. U.S. nat. Mus.* 90 (No. 3118) : pl. 71, fig. 1.

Comstock, John Henry, and Anna Botsford Comstock, 1929. How to know the butterflies. A manual of the butterflies of the eastern United States. Ithaca, The Comstock Publishing Company. Pl. 1, fig. 4, pl. 28, fig. 1♀, pl. 32, fig. 3♂.

Klots, Alexander Barrett, 1951. A field guide to the butterflies of North America, east of the Great Plains. Boston, Houghton Mifflin Company ; Cambridge, The Riverside Press. Pl. 10, fig. 1.

Lutz, Frank Eugene, 1935. Field book of insects of the United States and Canada, aiming to answer common questions. New York, G. P. Putnam's Sons. P. 117, pl. 82.

Macy, Ralph William, and Harold Henry Shepard [1941]. Butterflies. A handbook of the butterflies of the United States, complete for the region north of the Potomac and Ohio Rivers and east of the Dakotas. Minneapolis, The University of Minnesota Press. Pl. 4.

Because of the rarity of the Catesby work and its consequent unavailability to most students, perhaps such a reference would not be very useful, but it is included here because such a reference was recommended by Corbet.

Bibliography

- d'Almeida, Romualdo Ferreira, José Oiticica, Filho, *et al*, 1951. The International Commission on Zoological Nomenclature and the name of the Monarch butterfly. *Science* 113 : 728—729.
- Aurivillius, Per Olof Christopher, 1882. Recensio critica Lepidopterorum Musei Ludovicæ Ulricæ quae descripsit Carolus a Linné. *Kongl. Sv. Vetensk Akademiens Handlingar* 19 (no. 5) : 1—188, figs. 1—4, 1 pl. (colored).

- Corbet, Alexander Steven, 1941. The Linnaean names of Indo-Australian Rhopalocera. Part 2. *Proc. R. ent. Soc. Lond.* (B) **10** : pp. 17—27.
- _____, 1949a. The Linnaean names of Indo-Australian Rhopalocera. Part 6. The case of *Papilio plexippus* Linnaeus, 1758. *Ibid.* (B) **18** : 184—190.
- _____, 1949b. The Linnaean names of Indo-Australian Rhopalocera. Part 7. Summary of determinations. *Ibid.* (B) **18** : 191—199.
- Cramer, Pieter, and [in part] Caspar Stoll [1779—1791], "1782" [1779—1780]. De uitlandsche kapellen voorkomende in de drie waereld-deelen Asia, Africa en America. [The title and the text in Dutch and French.] Amsterdam, S. J. Baalde, and Utrecht, Barthelemy Wild, vol. 3, pp. : [8] + 1—36, 73 [sic], 38—176 + [2], frontispiece and pls. 193—288 (colored).
- Field, William Dewitt, John Frederick Gates Clarke, and John George Franclemont, 1951. On a recent proposal to correct an error committed by the International Commission on Zoological Nomenclature at the Paris 1948 meeting. *Science* **113** : 68—70.
- Holland, William Jacob, 1931. The Butterfly Book. New and thoroughly revised edition. Garden City, New York, Doubleday, Doran and Co., Inc. [2] + xii + 424 pp., 77 pls. (73 colored).
- Hübner, Jacob, 1816—[1826]. Verzeichniss bekannter Schmettlinge [sic]. Augsburg, 432 + 72 pp.
- Linnaeus, Carolus [Carl von Linné], 1758. *Systema Naturae per Regna tria Naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. Editio decima, reformata.* Stockholm, Laurentii Salvii, vol. 1, [4] + 824 pp.
- _____, 1764. *Museum S. R. M. Ludovicæ Ulricæ Reginae . . . in quo animalia rariora, exotica, imprimis insecta et conchilia describuntur et determinantur . . .* Stockholm, Salvius, [vi] + 720 + [2] pp.
- Riley, Norman, Denbigh, 1928, in Poulton, Edward Bagnall, and Norman Denbigh Riley, The Rhopalocera of the "St. George" expedition, from French Oceania. *Trans. ent. Soc. Lond.* **76** : 453—468.
- _____, 1951. The "Monarch" butterfly. *Science* **114** : 75—76.
- Talbot, George, 1943a. The specific name of the "Monarch" butterfly. *Entomologist* **76** : 84.
- _____, 1943b. Revisional notes on the genus *Danaus* Kluk (Lep. Rhop. Danaidae). *Trans. R. ent. Soc. Lond.* **93** : 115—148.

16. Comments received on the proposal submitted by Mr. Cyril F. dos Passos: The publication of Mr. dos Passos' proposal elicited comments from the following nine (9) specialists :—
 (1) F. Martin Brown (*Fountain Valley School, Colorado Springs, Colorado, U.S.A.*) ; (2) Bryant Mather (*Jackson, Mississippi,*

U.S.A.); (3) Eugene Munroe (*Department of Agriculture, Division of Entomology, Ottawa, Canada*) ; (4) T. N. Freeman (*Department of Agriculture, Division of Entomology, Canada*) ; (5) L. P. Grey (*Lincoln, Maine, U.S.A.*) ; (6) Karl P. Schmidt (*Chicago Natural History Museum, Chicago, Illinois, U.S.A.*) ; (7) Ralph L. Chermock (*University of Alabama, Alabama, U.S.A.*) ; (8) Richard M. Fox (*Colorado College, Colorado Springs, Colorado, U.S.A.*) ; (9) N. D. Riley (*British Museum (Natural History), London*). The foregoing comments are reproduced in the immediately following paragraphs. As will be seen, all the specialists concerned, with the exception of Dr. Richard M. Fox (paragraph 24), supported Mr. dos Passos' proposal. It must be noted also that, with the exception of the comment written by Mr. Riley, all the comments in question were written before the meeting of the Fourteenth International Congress of Zoology at Copenhagen in 1953 and therefore, before official recognition for the concept of neotypes had been given in the *Règles*. While re-affirming his support for the solution advocated by Mr. dos Passos, Mr. Riley reviewed that proposal in the light of the decision taken by the Copenhagen Congress and to suggest that, instead of Dr. Austin H. Clark's figure being designated as the standard of reference for the determination of the nominal species *Papilio plexippus* Linnaeus, the specimen so figured should be designated to be the neotype of that nominal species (paragraph 26 below).

17. Comment by Mr. F. Martin Brown (*Fountain Valley School, Colorado Springs, Colorado, U.S.A.*) : In a letter dated 11th October 1952, Mr. F. Martin Brown (*Fountain Valley School, Colorado Springs, Colorado, U.S.A.*) submitted the following comment on Mr. dos Passos' proposal (Brown, 1953, *Bull. zool. Nomencl.* 9 : 139) :—

In connection with a brief study of the "Monarch" butterfly as it appears in Australia I am still in a quandary as to its trivial name. The Commission's agreement at Paris allows two interpretations :

- (a) The trivial name *plexippus* Linnaeus is to be applied to the species represented by Holland on plate 7, figure 1 of the *Butterfly Book*, 1931 edition.
- (b) The trivial name *plexippus* Linnaeus is to be applied to the subspecies represented by the above quoted figure.

My personal reaction to the agreement was the broad interpretation suggested in (a) above. Since then numbers of taxonomists have shown that they choose to apply the restricted interpretation in (b) above.

I believe that the intention of the Commission was to consider *plexippus* Linnaeus reserved for the northern migratory race of the species, not the non-migratory tropic race called *menippe* Huebner. If my interpretation of the Commission's actions is correct I wish to add my plea to that of Mr. Cyril F. dos Passos (*Bull. zool. Nomencl.* 6 : 278—283, 1952) (Commission's reference Z.N.(S.) 323).

Mr. dos Passos' recommendation will make the situation clear that *plexippus* Linnaeus is to be used for the migratory Monarch butterfly of North America.

I have always read Linnaeus, 1758, with this in mind : that the material printed in italics is supplementary and often added notes ; that the true description is that printed in Roman type. The original description (p. 471, No. 80) then applies to the American species. The problem of whether or not Linnaeus had seen the American species before writing his 1758 description might be solved if it can be determined when he received Peter Kalm's collection. This was made in 1747 in ample time to have been seen by Linnaeus before writing description No. 80. I am inclined to believe that he had seen Kalm's material before he saw Osbeck's collected in 1750 in China. The 1758 description is likely made from Kalm's specimen later added to (in italics) from Osbeck's.

18. Comment by Mr. Bryant Mather (Jackson, Mississippi, U.S.A.) : In a letter dated 13th October 1952 Mr. Bryant Mather (Jackson, Mississippi, U.S.A.) submitted the following comment on Mr. dos Passos' proposal (Mather, 1953, *Bull. zool. Nomencl.* 9 : 138) :—

Through the kindness of Mr. Cyril F. dos Passos I have received copies of reprints of three papers from vol. 6 of the *Bull. zool. Nomencl.* relating to the *niobe/cydippe/adippe* problem (pp. 323—356) and to *Papilio plexippus* (pp. 278—283).

It is my view that the recommendations contained in these papers are reasonable and, in the absence of compelling arguments to the contrary of which I have no knowledge, merit acceptance. I have no personal prior information on the *niobe/cydippe/adippe* problem, hence my opinion is based entirely on the statements contained in the two papers dealing with it. In the case of the use of the name *plexippus* for the North American "Monarch" my views are based on my personal familiarity with the insect itself, my desire to see the nomenclature stabilised, study of the papers that appeared in *Science*

in 1951, and the statements in the reprint of the paper by Mr. dos Passos. I have before me three of the six figures offered for the Commission's choice by Mr. dos Passos. Those included in the works by Klots and Clark have the advantage of giving the locality from which the figured specimen came (Scranton, Pa., and Kendall, N.Y., respectively) while that in the work by Lutz has the advantage of being in colour. It is therefore my feeling, as it apparently is that of Mr. dos Passos, that, if it is deemed advisable to refer to a figure, it is relatively immaterial which one of those suggested is cited—with the possible exception of that in the work by Catesby—for the reason stated by Mr. dos Passos.

19. Comment by Dr. Eugene Munro (Department of Agriculture, Division of Entomology, Ottawa, Canada): On 15th October 1952 Dr. Eugene Munroe (Department of Agriculture, Division of Entomology, Ottawa, Canada) submitted the following comment on Mr. dos Passos' proposal (Munroe, 1953, *Bull. zool. Nomencl.* 9 : 139—140) :—

I have recently received from Mr. C. F. dos Passos of Mendham, N.J., a reprint of pp. 278—283 of *Bull. zool. Nomencl.* vol. 6, in which he proposes that the Commission modify its 1948 decision as to the application of the name *Papilio plexippus* Linnaeus so as to delete reference to "the American species figured as *Danais plexippus* by Holland (W. J.), 1931, *Butterfly Book* as figure 1 on plate 7", substituting the words "the North American 'Monarch' butterfly".

Although I am in agreement with the proposed action as a palliative measure, I do not think it strikes at the root of the problem.

Since I believe that the practice of designating the application of scientific names by reference either to vernacular names or to figures of specimens that have no status or ambiguous status as types is fundamentally wrong and is at variance with the whole type concept, I can give only qualified approval of Mr. dos Passos' proposal, which I could support only as a temporary measure to remove an existing positive evil.

I wish further to draw attention to the extremely sweeping nature of the principle expressed in paragraph 20 of Mr. dos Passos's submission. In that paragraph Mr. dos Passos appears to claim that, because the decision to approve lectotypes was not taken until 1948, lectotype designations made prior to that time have no standing.

I do not believe that this principle is implicit in the decision of the Commission recognising lectotypes. Indeed, two considerations argue the reverse :

(a) The fact that parallel provisions for the selection of types of genera (Article 30) in the absence of an original designation have always been taken to be retroactive.

(b) The wording of the definition of lectotype (*Bull. zool. Nomencl.* 4 : 186) is such as to include any published selection of a single type specimen from a series of syntypes subsequent to the original validation of the respective name.

If, however, I am wrong and Mr. dos Passos' contention is correct, it will automatically mean that almost all of the large number of "lectotypes" at present designated in literature and collections are from the standpoint of the rules spurious, and that a very large source of taxonomic confusion would be created.

It is with regret that I find myself unable to stand fully behind Mr. dos Passos' proposed solution to the *Papilio plexippus* problem, as there are already more than enough disagreements in the field of nomenclature.

20. Comment by Dr. T. N. Freeman (Department of Agriculture, Division of Entomology, Ottawa, Canada) : On 16th October 1952 Dr. T. N. Freeman (Department of Agriculture, Division of Entomology, Ottawa, Canada) submitted the following comment on Mr. dos Passos' proposal (Freeman, 1953, *Bull. zool. Nomencl.* 9 : 138) :—

I am in receipt of two letters from Mr. Cyril F. dos Passos of Mendham, N.J., who asked me if I would comment on his article in the *Bull. zool. Nomencl.* which deals with the reconsideration of the case of *Papilio plexippus* Linn. and also one which deals with two papers, one by Grey, Klots and dos Passos on the *niobe-cydippe-adippe* problem.

With regard to the *adippe* problem, I must say that I am in complete accord with the views and facts as outlined by Grey, Klots and dos Passos. I am also in accord with his views as outlined in his article on the *plexippus* problem with the exception that the suggestions would only solve the problem temporarily as outlined by Dr. Munroe of this Unit in his recent letter dated 15th October, 1952.

21. Comment by Mr. L. P. Grey (Lincoln, Maine, U.S.A.) : On 31st October 1952 Mr. L. P. Grey (Lincoln, Maine, U.S.A.) submitted the following comment on Mr. dos Passos' proposal (Grey, 1953, *Bull. zool. Nomencl.* 9 : 140) :—

I have read the application which Mr. dos Passos has filed with the International Commission on Zoological Nomenclature (1952, *Bull.*

zool. Nomencl. 6 : 278—283) to correct an error made at the Congress in Paris, 1948, in its decision regarding *Papilio plexippus* Linn., the object of Mr. dos Passos' application being for the Commission to use their Plenary Powers to fix the name *plexippus* as applying to the North American Monarch butterfly.

Inasmuch as the 1948 decision seems to apply inadvertently to a South American butterfly, contrary to most popular usage, and since if left unmodified, it threatens to perpetuate a nomenclatorial situation which is opposed by many workers, I am pleased to learn that the petition mentioned has been filed and wish to state that it has my full support. I hope that the Commission will designate a reference figure from some book readily available to students; this figure, I should think, ought also to be of a specimen now preserved in some well-known museum.

22. Comment by Dr. Karl P. Schmidt (Chicago Natural History Museum, Chicago, Illinois, U.S.A.): On 5th November 1952 Dr. Karl P. Schmidt (Chicago Natural History Museum, Chicago, Illinois, U.S.A.) submitted the following comment on Mr. dos Passos' proposal (Schmidt, 1953, *Bull. zool. Nomencl.* 9 : 140) :—

In the matter of the name of our common "Monarch" butterfly, I heartily approve the decision of the International Commission to suspend the rules, apply the trivial name *plexippus* to the American species, and place it on the *Official List of Specific Trivial Names*.

I wish to support the further suggestion of Mr. Cyril dos Passos as to amending the Commission's decision with reference to figures to be cited to identify the species properly as the typical *Danaus plexippus plexippus*.

23. Comment by Professor Ralph L. Chermock (University of Alabama, Alabama, U.S.A.): On 9th November 1952 Professor Ralph L. Chermock (University of Alabama, Alabama, U.S.A.) submitted the following comment on Mr. dos Passos' proposal :—

.....

The problem involved is one of great interest to students of Lepidoptera in the United States. Many have written to me asking my opinion on the matter, and practically all of them feel that the trivial name *plexippus* should be restricted to the North American subspecies with which it has been associated in the majority of the scientific, popular and economic literature.

I have read the paper by Mr. Cyril dos Passos which was published in the *Bulletin of Zoological Nomenclature*, vol. 6, pp. 278—283, 1952, and have carefully perused the pertinent literature available for study. I personally feel that the original decision of the Commission, as quoted on page 281 of the above paper, applying the trivial name *plexippus* to the specimen figured by Holland (1931) in his *Butterfly Book*, figure 1, plate 7, was most unfortunate. If qualified Lepidopterists in the United States (where this butterfly is found) had been consulted, the present difficulty could have been prevented. It is my sincere hope that similar errors will not be repeated, because they defeat the purpose of Nomenclature, creating additional confusion, instead of eliminating them ; and weaken the confidence of scientists in the Commission, which is so necessary in modern taxonomy.

The recommendation, as proposed by Mr. dos Passos, is a sound one and represents considerable thought. I am in complete agreement with the proposal in principle. However, I believe it is far wiser to designate a specimen (or potential specimen) as type, rather than an illustration, since the *opinion* essentially represents a type designation. This permits morphological studies of types which would not be possible otherwise. I therefore recommend that the name be restricted to the specimens as figured in either of the following two works :

Clark, Austin H. (1941) Notes on some North American Danaid Butterflies, *Proc. U.S. nat. Mus.*, 90 (No. 3118) : Pl. 71, fig. 1. (This specimen figured is in natural size, is accompanied by a related subspecies with which it might be confused, and is housed in the United States National Museum).

Klots, Alexander B. (1951) A Field Guide to the Butterflies of North America, east of the Great Plains., Pl. 10, fig. 1. (This specimen has the advantage of being in colour, although it is not in natural size, and is not accompanied by an illustration of its nearest relative. I presume, however, that the specimen is in existence in the American Museum of Natural History in New York).

24. Comment by Dr. Richard M. Fox (Colorado College, Department of Zoology, Colorado Springs, Colorado, U.S.A.) : On 18th November 1952 Dr. Richard M. Fox (Colorado College, Department of Zoology, Colorado Springs, Colorado, U.S.A.) submitted the following comment on Mr. dos Passos' proposal :—

Our valued colleague, Mr. Cyril F. dos Passos, recently sent me his application aenent *Papilio plexippus* Linné from *Bull. zool. Nomencl.*, 6 : 278—283 and suggested I send comments on to you. This I do herewith with a copy to Mr. dos Passos.

As Mr. dos Passos points out in paragraph 15 of the above reference, the question of applying *P. plexippus* Linné, 1758, either to the North American or to the Oriental Danaid now is academic. In passing, however, I desire to record my disapproval of the Commission's decision. To my way of thinking, all the evidence suggested that the name should be applied to the Oriental species. The fact that Linné, 1758, cited North America as the type locality is entirely beside the point in view of the fact that he actually had the Oriental species, not the American. One must conclude that Linné made a geographic blunder.

Nor am I impressed by the fact that the name has so frequently been used for the North American species in publications of various sorts. A wrong cannot be metamorphosed into a right just because ever so many people have been wrong.

In general I am opposed to conserving names for any reason whatsoever: to do so adds in the long run to the confusion (*P. plexippus* is a case in point—nobody's satisfied); to do so negates the basis for the Rules; to do so removes nomenclature from its status as a science and places it in the status of a hobby. A sharp knife is needed to cut a Gordian knot; do we lack Alexander's courage?

But that is academic now. The Commission has decided to apply the name to the American species, so be it.

I do not see the need for redesignating the type figure of *P. plexippus*, as Mr. dos Passos is suggesting. First, the designation of a lectotypic specimen is a far better mechanics than designating a picture to a specimen; should it appear that any alteration of the Commission's decision in this matter is required, I should greatly prefer to have a lectotype designated—preferably a specimen from a homogenous series so that some "paralectotypes" would then exist, and could be distributed to various collections.

Second, were the Commission's present ruling allowed to stand, no great inconvenience or difficulty appears to me. As the situation now stands, the Holland figure is the type. I suppose that the original specimen of the figure thereby becomes the lectotype. I imagine that this particular insect still exists in the collection at the Carnegie Museum. That means that the South American subspecies is *Danaus plexippus plexippus* (= *P. menippe* Hübner) and that the North American subspecies must take the next available name. A cursory check suggests that this next available name probably is *P. genutia* Cramer, 1779. That's a nice name. In any event, there surely is a next available name! And *D. plexippus* now includes all the subspecies of the polytypic American species—and that was what was wanted to begin with.

I would be perfectly satisfied to make the best of the situation as it now stands. A name is only a convenience. I have no emotional

attachment to the taxonomic designation of any animal. But if there appears to you and to the Commission any compelling reason for altering your designation of the Holland figure, I most strongly recommend that you do NOT substitute the designation of some other figure, but that you designate a lectotypic specimen.

I greatly dislike standing in disagreement with my colleague and valued friend Mr. dos Passos. But you will note that there are two principles here about which I have definite opinions : first, I do not like pictures designated as types, but prefer the use of the lectotype mechanics ; second, I do not like conserving names out of sentiment.

25. Comment by Mr. N. D. Riley (British Museum (Natural History), London) : On 18th December 1953 Mr. N. D. Riley (British Museum (Natural History), London) submitted the following comment on Mr. dos Passos' proposal :—

I have been much interested to read the article by Mr. dos Passos (*Bull. Zool. Nomen.* 6 : 278) on the question of selecting a suitable figure of *Papilio plexippus* Linnaeus to illustrate the Commission's decision on the application of this name, taken in Paris in 1948.

Whilst I am still of the opinion that the action the Commission then took was perfectly adequate for the purpose and leaves no doubt as to the species to which the name should be applied, it is clear that others think differently, and therefore they wish the Commission to be even more precise and to indicate by means of a figure the subspecies, not merely the species, to which this name is properly applied. This certainly gives the name greater precision, but I think it goes beyond the real need of the case.

Mr. dos Passos, on page 282 of the article referred to above, lists six works in which *Papilio plexippus* is illustrated. Three of these works, namely those by Macy and Shepperd, Lutz and Comstock illustrate the species in colour, and all those figures are very good, though to my mind there may be some slight doubt in respect of Comstock's figure as to which subspecies is illustrated. In none of these works, however, is there any indication of the locality from which the specimen figured derives, or any hint that the specimen figured may be preserved anywhere and available for study. Catesby's work was published so long ago that the likelihood of the specimen illustrated being anywhere preserved is exceedingly remote. Of the remaining figures, namely those by Klots and Clark, both are reproductions of black and white photographs, and in each case details are given of the locality of the specimen figured. Klots illustrates only the left wings and the body of the insect, whereas Clark gives an admirable full picture, of which the only criticism I have to make is that the photographic screen used has failed to differentiate between the white and the brown spots, a

feature of importance, in the apical region of the forewing. Nevertheless there is absolutely no doubt that the specimen illustrated is a typical *plexippus*, and I would suggest, that, if the Commission still wishes to select another figure to give further point to their 1948 decision, then this would be a suitable one.

I am writing to Clark to ask whether this actual specimen is safely preserved anywhere, as I feel confident it will be.

26. *Proposal by Mr. N. D. Riley (British Museum (Natural History), London) that the case dealt with in the present "Opinion" should be settled by the designation of a neotype:* On 29th December 1953 Mr. N. D. Riley reported the result of his consultation with Dr. Austin H. Clark (*United States National Museum, Washington, D.C., U.S.A.*)—first referred to in Mr. Riley's letter of 18th December 1953, reproduced in paragraph 25 above—and proposed that, now that the present location of the specimen figured under the specific name *plexippus* by Clark in 1941 had been established, Mr. dos Passos' proposal, with which, as he had already stated he was in agreement, should be modified by the substitution of a recommendation that the specimen figured should be designated as the neotype of *Papilio plexippus* Linnaeus in place of the recommendation that the Commission should direct that the figure of that specimen should be the standard of reference to be used in the identification of the foregoing nominal species. Mr. Riley's letter was as follows:—

The following is quoted from a letter received yesterday from Austin Clark:—

The specimen of *Danaus plexippus plexippus* figured on plate 71, fig. 1, *Proc. U.S. Nat. Mus.*, vol. 90, 1941, is in the U.S. National Museum collection. Since the photograph was taken the genitalia have been mounted on a slide (W.D. F[ield], 3317). I do not have a private collection, but turn over all my specimens to the Museum.

Now that we know the location of the specimen figured in Clark's paper and the labels on it, it would, I think, be much better if the Commission were to designate that specimen to be the neotype of *Papilio plexippus* Linnaeus, instead of fixing the published figure of that specimen as the standard of reference for the identification of this nominal species.

27. Supplementary Report submitted by the Secretary in January 1954 : When at the beginning of 1954 the bulk of the *Opinions* required for the purpose of giving effect to the decisions taken by the International Commission on Zoological Nomenclature at its Session held in Paris in 1948 had been duly prepared, Mr. Hemming, as Secretary to the Commission, judged that the time had come to seek a decision on the outstanding question relating to the specific name *plexippus* Linnaeus, 1758, as published in the combination *Papilio plexippus*. He accordingly decided to seek a decision on this question under the One-Month Rule. For this purpose Mr. Hemming prepared the following explanatory note which was submitted to the Commission—by air mail to Commissioners resident outside Europe—on 27th January 1954 :—

**The specific name “plexippus” Linnaeus, 1758, as published in the combination “Papilio plexippus”
(Class Insecta, Order Lepidoptera)**

The purpose of the present submission is to seek a decision from the International Commission on an outstanding question which must be settled before an *Opinion* can be rendered setting out the decision taken in this matter by the Commission at its Session held in Paris in 1948 (see 1950, *Bull. zool. Nomencl.* 4 : 359—361).

2. The Commission will recall that the question on which in 1948 it was asked by Dr. A. Steven Corbet to give a decision was whether the specific name *plexippus* Linnaeus, 1758, as published in the combination *Papilio plexippus* (*Syst. Nat.* (ed. 10) 1 : 471) should apply (1) to the American Danaid species known in that country as the “Monarch” for which it was widely used in North America and Europe, or (2) to the Oriental Danaid species to which the name *genutia* was given by Cramer (*Papilio genutia* Cramer, 1779), which it had been widely used for it by workers on the Indo-Oriental Fauna. This diversity of practice arose from the impossibility, without the intervention of the Commission, of securing an interpretation of the confused description given by Linnaeus for the foregoing nominal species which would be binding upon all workers. The answer given by the Commission, under its Plenary Powers, to the question so submitted was that the name *plexippus* Linnaeus shall apply to the American species and not to the Oriental species.

3. With the intention of making this decision perfectly clear, the Commission stated in the Ruling adopted that this specific name was to “be applied to the American species figured as *Danais plexippus* by Holland (W. J.), 1931, *Butterfly Book* as figure 1 on plate 7”. It is at this point that the problem on which the Commission

is now asked to vote subsequently arose, for it was found that Holland's figure, though purporting to represent the migratory subspecies well known in the United States represented not that subspecies but the South American subspecies of the same species. The question was then raised as to whether the effect of the Commission's decision was to make the South American subspecies, instead of the North American subspecies, the nominate subspecies of the nominal species *Danaus plexippus* (Linnaeus), a result which would be entirely contrary to the intention of the proposal (*Bull. zool. Nomencl.* 4 : 360) submitted to the Commission. For one of the chief points in that proposal was that this species was described from specimens taken in North America (actually in the neighbourhood of Philadelphia) by Linnaeus's Swedish disciple Peter Kalm, and therefore that it was desirable that the name *plexippus* Linnaeus should apply to the North American and not to the Oriental species described by Cramer.

4. After considering the situation created by this difficulty, which was first brought to the attention of the Commission in 1950, and after consulting Mr. N. D. Riley, I came to the conclusion that the best course would be to prepare a statement setting out the problem and to seek the views of lepidopterists as to the best solution to be reached. The document so prepared was in the form of a draft note, which was intended to serve as a basis of discussion. Two suggestions were submitted in this draft : (1) that the Commission's Paris decision should be modified by the substitution for the reference to Holland's figure of a reference to a figure (in black and white) in a paper by Austin H. Clark published in 1941 under the title "Notes on some North and Middle American Danaid Butterflies" (*Proc. U.S. nat. Mus.* 90 : 533—536, pl. 71, fig. 1 (male)), and (2) that there should be added to the decision a ruling that the type locality of the nominate subspecies should be deemed to be "Pennsylvania".

5. The draft document so prepared was submitted on 28th October 1950 to the following twenty-three specialists, whose names had been suggested by Mr. Riley : (1) *North America* (thirteen specialists) : Bryan Beirne (*Ottawa*) ; J. Martin Brown (*Colorado Springs*) ; Austin H. Clark (*Washington, D.C.*) ; J. F. Gates Clarke (*Washington, D.C.*) ; J. A. Comstock (*Los Angeles*) ; C. F. dos Passos (*Mendham, N.J.*) ; W. D. Field (*Washington, D.C.*) ; Wm. T. M. Forbes (*Ithaca, N.Y.*) ; J. G. Franclemont (*Washington, D.C.*) ; W. Hovanitz (*Ann Arbor*) ; A. B. Klots (*New York City*) ; J. McDunnough (*Halifax, Nova Scotia*) ; C. D. Remington (*New Haven, Conn.*) ; (2) *South America* (three specialists) : Ferreira d'Almeida (*Rio de Janeiro*) ; K. J. Hayward (*Tucumán*) ; A. da Costa Lima (*Rio de Janeiro*) ; (3) *Europe* (five specialists) : J. Bourgogne (*Paris*) ; G. D. Hale Carpenter (*Oxford*) ; W. J. Hall (*London*) ; B. C. S. Warren (*Folkestone*) ; C. B. Williams (*Harpenden*) ; (4) *Africa* (2 specialists) : E. Pinhey (*Nairobi*) ; G. van Son (*Pretoria*). All the specialists so consulted replied, with the exception of Senhor Ferreira d'Almeida and Dr. J. A. Comstock.

6. Of the twenty-one specialists who replied, thirteen (Bourgogne ; Carpenter ; Clark (A. H.) ; dos Passos ; Hall ; Hovanitz ; Klotz ; Costa Lima ; McDunnough ; Pinhey ; Remington ; Warren ; Williams) fully supported the selection of Clark's fig. 1 on pl. 71 to be the standard for the identification of this species. In addition, two other specialists gave a qualified support for the designation of Clark's figure. Martin Brown would have preferred the selection, as a lectotype, of a specimen of the North American "Monarch" from the Linnean collection ; his concurrence in the designation of Clark's figure was subject to the understanding that this did not make the specimen so figured the type. Forbes supported the designation of the Clark figure as the second-best procedure, his first preference being to abandon the use of the name *plexippus* altogether. Three (Klots ; Remington ; Williams), considered that if the proposed selection were made, the locality to be fixed for the nominate subspecies should be the locality of the specimen figured by Clark (a specimen taken at Kendall, in New York State) and not "Pennsylvania", the State from which Linnaeus received his specimens from Kalm. In addition, two specialists (Field ; Munroe) who were opposed to the designation of a figure expressed the view that, if such a course were to be adopted, the locality to be cited for the species should agree with the locality of the specimen figured. With this criticism of my proposal of October 1950, I am in full agreement, for I agree that, unless the restricted locality cited is that in which the figured specimen was obtained, there is a risk that later taxonomic work may show either that two species are involved or that the subspecies from the restricted locality does not agree with the cited figure.

7. Three specialists (Gates Clarke ; Franclemont ; Hayward) considered that the problem should be settled on the basis of strict priority by the selection of a lectotype from the Linnean collection, the specimen so to be selected to belong to whichever of the two species concerned (the North American "Monarch" or the Oriental species) appeared correct in the historical background. Clarke & Hayward suggested the appointment of an *ad hoc* Committee to examine the Linnean material from this point of view.

8. Munroe (replying to the letter addressed to Beirne) believed that it should be possible to secure, by the selection of a lectotype, that the name *plexippus* should apply to the North American "Monarch", a course to which he had no objection and which from the standpoint of the North American literature he considered somewhat to be preferred. He considered that in cases of this kind settlements should be reached not by the designation of figures to represent species but by the selection of lectotypes or, if that was not possible, by the designation of neotypes ; he added that he very much hoped that it would prove practicable to devise an acceptable scheme for the designation of the latter class of type specimen.

9. Field had no objection to action by the Commission to secure that the name *plexippus* Linnaeus should apply to the North American "Monarch", but objected to the method proposed, for he considered that a specimen and not a figure should be designated for this purpose. He suggested that a specimen of the North American "Monarch" in the Linnean collection should be selected as the lectotype or, if this was not approved, that the Commission should select—and figure—as the standard of reference for this species, a specimen from "Pennsylvania" or from any other North American locality from which Linnaeus could have obtained material, or from which specimens figured by the authors cited by Linnaeus were obtained. Field added that the selection by the Commission of a previously published figure would also, in his opinion, be a permissible procedure, though one inferior to those suggested above.

10. Finally, van Son favoured a reversal of the Paris decision and the use of the name *plexippus* for the Oriental Danaid.

11. In April 1952 Mr. dos Passos submitted the formal proposal published in volume 6 (: 278—283) of the *Bulletin of Zoological Nomenclature*. Mr. dos Passos' proposal is that the wording of the Paris decision should be amended (a) by the substitution of the words "North American 'Monarch' butterfly" for the words "American species", (b) by the deletion of the reference to Holland's figure, and (c) by the addition, if desired, of a reference to one or other of six figures, specified by Mr. dos Passos, each of which unquestionably represents the North American subspecies of the "Monarch" butterfly. The authors of the works containing the figures included in Mr. dos Passos' list are:—(1) Catesby, M. (1730—1748); (2) Clark, A. H. (1941); (3) Comstock, J. H. & Comstock, A. B. (1929); (4) Klots, A. B. (1935); (5) Lutz, F. E. (1935); (6) Macy, R. W. & Shepard, H. H. (1941). The figure serving as the unique reference figure for this species, if taken from Clark (1941) would be the same figure (pl. 71, fig. 1) as that suggested in 1950, for which it will be recalled from the particulars given in paragraph 6 above, a large amount of support has been received.

12. In all, nine comments have been elicited by the publication and advertisement of Mr. dos Passos' proposal. Of these the first six have been published in the *Bulletin*: Mather, B. (9 : 138); Freeman, T. N. (9 : 138); Munroe, E. (9 : 139); Brown, J. Martin (9 : 139); Grey, L. P. (9 : 140); Schmidt, Karl P. (9 : 140). The three comments last received are from Ralph L. Chermock; Richard F. Fox; N. D. Riley. Of the nine specialists cited above all except Fox (who does not consider any action necessary) support Mr. dos Passos' proposal. Among the zoologists included in the foregoing list, two in 1950 were opposed to a solution on the lines suggested. These are (i) Munroe (with whose view Freeman associates himself now) who supports the proposal as a palliative without prejudice to his preference for the

selection of a lectotype, if that were possible, or, failing that, of a neotype, and (ii) Martin Brown who gives the dos Passos proposal unqualified support.

13. Riley, whose comments are set out in letters dated 18th and 29th December 1953 [reproduced in paragraphs 25 and 26 above], alone comments in detail on the various alternative figures suggested by dos Passos as candidates for selection as the unique standard of reference for the identification of *Papilio plexippus* Linnaeus. For the reasons which he explains, Riley comes down strongly in favour of the selection of the illustration given by Clark as figure 1 on plate 71 in his 1941 paper. This selection as Riley points out, would leave no possible doubt as to the identity of the nominate subspecies of *Papilio plexippus* and further would have the advantage that the specimen figured by Clark is a reproduction of a known specimen and one which is preserved in a great National Collection (the *U.S. National Museum, Washington*) and which has been examined in detail, a preparation of the male genitalia of this specimen having been made by Field. Incidentally, the selection of this specimen would have the advantage that it would provide for the nominal species under consideration a definite restricted locality, namely "Kendall, New York", the locality on the label of the specimen figured by Clark. At the conclusion of the second of his letters, Riley makes the important suggestion that in existing circumstances it would be more appropriate for the Commission to designate Clark's figured specimen to be the neotype of *Papilio plexippus* Linnaeus, than (as hitherto contemplated) to direct that the foregoing nominal species is to be identified by reference to the published photograph of that specimen. This suggestion is further discussed in paragraph 15 below.

14. The particulars given above show (1) that there is a large majority of specialists in favour of the use of the specific name *plexippus* Linnaeus, 1758, for the North American subspecies of the "Monarch", and (2) that, within this field, the proposal that this should be secured by reference to figure 1 on plate 71 in Clark's paper has the support of all the workers concerned. At this point it must be noted that the situation has changed in one respect since Mr. dos Passos put forward his proposal through the action of the Copenhagen Congress in 1953 in granting official recognition to the concept of neotypes.

15. In these circumstances it is for consideration whether, as suggested by Mr. Riley (paragraph 13 above), it would not be more appropriate for the proposed decision to take the form of a direction that the specimen illustrated as figure 1 on plate 71 of A. H. Clark's paper of 1941 is to be the neotype of the nominal species *Papilio plexippus* Linnaeus, 1758, rather than (as hitherto contemplated) the form of a direction that the foregoing nominal species is to be interpreted by reference to the figure cited above. There are two considerations which support the adoption of the neotype procedure:

(1) A decision to link the name *plexippus* Linnaeus to Clark's figure is itself tantamount to the designation of that specimen as the neotype, for it would make it impossible for any worker at a later date to select any other specimen as the neotype of this species. (2) Procedure by this method would be more in harmony with current taxonomic practice, in that it would link the name *plexippus* Linnaeus to a definite specimen which could at any time be subjected to further study, if this were to be considered necessary on taxonomic grounds.

16. It is considered that the Commission may find it convenient to vote separately (1) on the proposal that the name *plexippus* Linnaeus is to be applied to the migratory North American "Monarch" butterfly; (2) on the question whether the foregoing determination of the nominal species shall be (a) by reference to the figure in Clark's paper of 1941 or (b) by reference to the specimen so illustrated, that specimen therefore to become the neotype of this species. Accordingly, in the Voting Paper now submitted two separate votes are invited, the first on the general issue propounded in Mr. dos Passos' proposal, the second (which becomes relevant only if the vote on the first issue is in the affirmative), on the method to be adopted for giving effect to that proposal.

28. Issue of Voting Paper V.P.(54)4: Simultaneously with the submission to the Commission of the memorandum reproduced in the immediately preceding paragraph, a Voting Paper (V.P.(54)4) was issued to the Members of the Commission for the purpose of obtaining a decision in the present case. For the reasons explained in paragraph 16 of the Secretary's covering memorandum, the Members of the Commission were invited in this Voting Paper to vote, first on the general question whether the name *plexippus* Linnaeus, 1758, as published in the combination *Papilio plexippus*, was to be applied to the migratory North American "Monarch" butterfly, and second, if the vote given on the first vote was in the affirmative, on the question whether the foregoing end should be secured by the designation of a neotype for the nominal species *Papilio plexippus* Linnaeus, 1758 (Mr. Riley's proposal) or by a direction that the foregoing nominal species was to be identified by reference to a specified published figure (Mr. dos Passos' original proposal).

29. The prescribed Voting Period: As the foregoing Voting Paper was issued under the One-Month Rule, the prescribed Voting Period closed on 27th February 1954.

30. *Text of Vote No. 1* : Under the procedure indicated above, Members of the International Commission were invited to vote either for, or against, the proposal submitted by Mr. dos Passos "that the decision taken in Paris in regard to the interpretation of the nominal species *Papilio plexippus* Linnaeus, 1758, be amended (i) by the substitution of the words 'North American "Monarch" butterfly' for the words 'American species', (ii) by the deletion of the reference to the figure given in Holland (W.J.), 1931, *Butterfly Book*, and (iii) by the insertion of appropriate particulars for the identification of the species popularly so known".

31. *Particulars of the Voting on Vote No. 1* : The state of the voting on Vote No. 1 (in Voting Paper (54)4) at the close of the prescribed Voting Period, was as follows :—³

(a) *Affirmative Votes had been given by the following seventeen (17) Commissioners (arranged in the order in which Votes were received) :—*

Riley ; Holthuis ; Lemche ; Sylvester-Bradley ; Bonnet ; Vokes ; Hering ; Dymond ; Bradley (J.C.) ; Esaki ; do Amaral ; Cabrera ; Hemming ; Mertens ; Pearson ; Jaczewski ; Boschma ;

(a) *Negative Votes :*

None ;

³ The following zoologists who were Members of the International Commission at the time of the issue of Voting Paper V.P.(54)4 were neither Members nor Alternate Members of the Commission at the time when the case of the nominal species *Papilio plexippus* Linnaeus, 1758, was dealt with by the International Commission at its Session held in Paris in 1948 :—

Professor Pierre Bonnet (*Université de Toulouse, France*)

Professor Robert Mertens (*Natur-Museum u. Forschungs-Institut Senckenberg, Frankfurt a. Main*)

Professor Erich Martin Hering (*Zoologisches Museum der Humboldt-Universität zu Berlin*)

Mr. P. C. Sylvester-Bradley (*Sheffield University, Sheffield, England*)

Dr. L. B. Holthuis (*Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands*)

(c) *Voting Papers were not returned by the following two (2) Commissioners :—⁴*

Hankó ; Stoll.

32. Text of Vote No. 2; In Vote No. 2 (on Voting Paper V.P.(54)4) Commissioners who voted affirmatively on Vote No. 1 (for the text of which see paragraph 30 above) were invited to vote affirmatively either for Alternative "A" or for Alternative "B" submitted therewith. The following are the texts of the Alternatives so submitted :—

Alternative "A"

(definition by reference to a neotype)

(1) Under the Plenary Powers it is hereby directed that the specific name *plexippus* Linnaeus, 1758, as published in the combination *Papilio plexippus*, is to be interpreted by the male specimen of the North American "Monarch" butterfly taken by H. S. Burnett at Kendall, New York (i) which was illustrated in 1941 in the paper by Clark (A.H.) entitled "Notes on some North and Middle American Danaid Butterflies" (*Proc. U.S. nat. Mus.* **90** : 533—536, pl. 71, fig. 1), and (ii) which is now preserved in the United States National Museum (the preparation of the male genitalia prepared from which being labelled "W. D. F[ield], 3317") ; that the foregoing specimen shall be the neotype of the above species, and that the locality in which this specimen was collected shall be the restricted locality of this nominal species. (2) The specific name *plexippus* Linnaeus, 1758, as published in the foregoing combination and as determined in (1) above, is hereby placed on the *Official List of Specific Names in Zoology*.

Alternative "B"

(definition by reference to a figure)

(1) Under the Plenary Powers, it is hereby directed that the specific name *plexippus* Linnaeus, as published in the combination *Papilio plexippus*, is to be applied to the North American "Monarch" butterfly illustrated as figure 1 on plate 71 of the paper by Clark (A.H.) published in 1941 under the title "Notes on Some North and Middle American Danaid Butterflies" (*Proc. U.S. nat. Mus.* **90** : 533—536, pl. 71, fig. 1) and that the restricted locality of this nominal species shall

⁴ After the close of the prescribed Voting Period, affirmative Votes were received from the two Commissioners (Stoll ; Hankó) whose Voting Papers had not been returned prior to that date. Thus, all the Members of the Commission voted in this case and all voted affirmatively.

be "Kendall, New York", the locality in which the specimen so figured was collected. (2) The specific name *plexippus* Linnaeus, 1758, as published in the foregoing combination, and as determined in (1) above, is hereby placed on the *Official List of Specific Names in Zoology*.

33. Particulars of the Voting on Vote No. 2 : At the close of the prescribed Voting Period on 27th February 1954 the state of the voting was as follows :—⁵

(a) *Votes in favour of Alternative "A" (definition by neotype) had been given by the following sixteen (16) Commissioners (arranged in the order in which votes were received) :—*

Riley ; Holthuis ; Lemche ; Sylvester-Bradley ; Bonnet ; Vokes ; Hering ; Dymond ; Bradley (J.C.) ; Esaki ; do Amaral ; Cabrera ; Hemming ; Mertens ; Pearson⁶ ; Jaczewski ;

(b) *A vote in favour of Alternative "B" (definition by reference to a figure) had been given by the following one (1) Commissioner :*

Boschma ;

(c) *Voting Papers were not returned by the following two (2) Commissioners :—⁷*

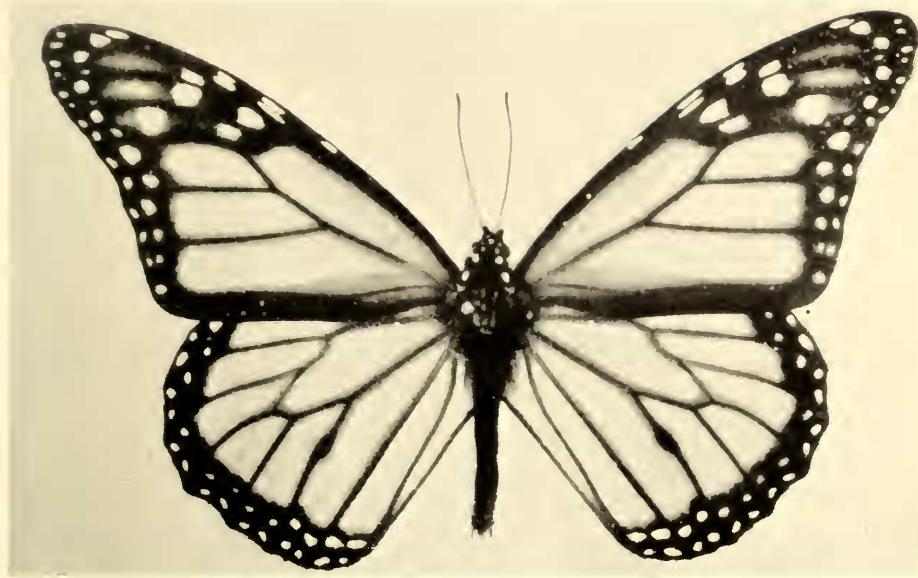
Hankó ; Stoll.

34. Declaration of Result of Vote on Voting Paper V.P.(54)4 : On 28th February 1954 Mr. Hemming, Secretary to the International Commission, acting as Returning Officer for the vote taken on Voting Paper V.P.(54)4, signed a Certificate that the votes cast were as set out in paragraphs 31 and 33 above and declaring that the proposal submitted as Alternative "A" in

⁵ See footnote 3.

⁶ Commissioner Pearson exercised in this case the right conferred by the Thirteenth International Congress of Zoology in Paris, 1948, under which a Commissioner may, if he so desires, signify his willingness to support the view, or the majority view, of other members of the Commission (1950, *Bull. zool. Nomencl.* 4 : 50—51).

⁷ See footnote 4. In the Voting Papers received after the close of the Prescribed Voting Period, each of these Commissioners voted in favour of Alternative "A". The total vote for that Alternative amounted therefore to eighteen out of a possible nineteen votes.



"*Papilio plexippus*" Linnaeus, 1758.

♂ Neotype designated under the Plenary Powers in *Opinion* 282.

The above Neotype is preserved in the United States National Museum, Washington, D.C., U.S.A. The photograph of this Neotype is a reproduction of a photograph published in 1941 (Clark (H.A.), 1941, *Proc. U.S. Nat. Mus.* **90** : pl. 71, fig. 1).

